



STATE OF WASHINGTON

2005 Volunteer Firefighters' Relief and Pension Fund Actuarial Valuation

As of December 31, 2005



*Prepared by
the Office of the State Actuary*



STATE OF WASHINGTON

Board for Volunteer Firefighters and Reserve Officers

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As of December 31, 2005





WASHINGTON STATE LEGISLATURE

Office of the State Actuary

Report of the Actuarial Valuation of the Volunteer Firefighters' Relief and Pension Fund As of December 31, 2005

This report represents the results of the actuarial valuation of the assets and liabilities of the Volunteer Firefighters' Relief and Pension Fund of Washington as of December 31, 2005. The valuation was prepared in accordance with RCW 41.24.320.

Member and beneficiary data were provided by the Board of Volunteer Firefighters. Comparisons were made of the current to prior year's data. Additionally, a series of data edits were performed. The data are sufficient and reliable for the purposes of this valuation. Unaudited asset information was provided by the Washington State Investment Board and the Washington State Treasurer.

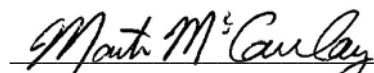
The investment return assumption used in this valuation was adopted in 2005.

Demographic assumptions were developed by the Office of the State Actuary. The assumptions are developed from actual experience. An experience study of retirement and termination is performed annually. Where there are insufficient data for an experience study, we use our best estimate of the expected future experience. The assumptions are reasonable and represent the expected future experience.

The valuation includes all benefits that were in effect on the valuation date plus the Laws of 2006.

This report was prepared in accordance with recognized actuarial practices and the procedures consistent with the recommendations of the American Academy of Actuaries.

Sincerely,


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As of December 31, 2005





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As of December 31, 2005





Section I

Summary and Highlights





As of December 31, 2005



Section I

Summary and Highlights



The purpose of an actuarial valuation is to:

- Develop contribution rates that are adequate to support the benefits of the system, as prescribed in statute;
- Measure the funding progress of the system;
- Compare experience with assumptions used;
- Detect significant demographic changes;
- Highlight significant plan changes; and,
- Highlight significant assumption changes.

Contribution Rates:

		Previous Method 8% interest	New Method 8% interest	New Method 7% interest
Per Person Contribution Rates				
Valuation	2004	2005	2005	2005
Pension Rate				
Employee	\$30	\$30	\$30	\$30
Employer	30	30	30	30
State	<u>61</u>	<u>61</u>	<u>7</u>	<u>30</u>
Normal Cost Rate	\$121	\$121	\$67	\$90
State UAAL or (Surplus) Rate	<u>(45)</u>	<u>(81)</u>	<u>(23)</u>	<u>131</u>
Pension Rate	76	40	44	221
Relief Rate				
Employer	30	30	30	30
State	<u>70</u>	<u>89</u>	<u>89</u>	<u>89</u>
Relief Rate	100	119	119	119
Operating Expenses				
Administration and Expenses	\$22	\$23	\$23	\$23

**The employer fee for the Relief Plan was increased from \$10 to \$30 effective July 24, 2005.*

The pension rate is the estimated annual cost determined by the actuarial valuation. It is comprised of the normal cost rate, plus a rate to amortize the unfunded actuarial accrued liability, or minus a rate to amortize a surplus.

The relief rate and the rate to pay for operating expenses are based on actual annual costs. The interest rate used to discount liabilities was reduced from eight percent to seven percent effective October 15, 2005.

The pension costs are allocated to pension members. Relief costs and operating expenses are allocated to all members.



Measurement of Funding Progress:

We have used the *Funding Ratio* as a measure of funding progress. The Funding Ratio is the percentage of benefits earned to date which are covered by the actuarial value of assets. The funding ratio decreased from 113 percent as of December 31, 2004, to 95 percent as of December 31, 2005.

Comparison of Experience to Assumption:

- Investment Return on the Actuarial Value of Assets was 9.0 percent, compared to the 7.0 percent assumption.
- Investment Return on the Market Value of Assets, as reported by the State Investment Board, was 13.6 percent.
- Retirements were 26 percent below expected (63 compared to the 85 expected).
- Terminations were 36 percent above expected (1,885 compared to the 1,388 expected).

Significant Demographic Changes:

- The number of active members covered by the pension plan decreased by 183 (minus 2 percent).
- The difference between the numbers of active members covered by the relief plan from 2004 to 2005 is not precisely known due to differences in the way the data was reported from 2004 to 2005.
- Total number of retirees increased by 98 (plus 3 percent).
- Total annual pension benefits increased by \$237,501 (plus 4 percent), from 6,639,063 to \$6,876,564.

Distribution of Membership Between 2004 and 2005			
	2004	2005	Increase
Number of Active Members in Relief Plan	17,813	14,185	NA
Number of Active Members in Pension Plan*	12,109	11,926	-2%
Percent of Volunteers Covered by Pension Plan	68%	84%	
Average Age	41.0	41.2	
Average Years of Service	10.0	10.2	
Number of Retirees/Beneficiaries	3,110	3,208	+3%
Number of Terminated Vested	4,657	4,891	+5%
Number of Survivors (Line of Duty)	14	14	
Number of Disabilities	16	13	

*Includes 38 Emergency Medical Technicians and 288 Reserve Law Enforcement Officers in 2005.



Significant Plan Changes

There were no plan changes since the prior valuation.

Significant Assumption Changes

The assumed interest rate used to discount liabilities was lowered from 8 percent to 7 percent effective October 15, 2005.

Significant Relief Benefits not Reflected in the Model

The costs for the relief benefits, including medical benefits, disability payments, and death benefits, shown in this report are based on actual annual costs. Future valuations should show the cost of the relief benefits on a projected basis, including an assumption for the trend rate, a measure of the rate of change over time of the per capita health care rates. The costs for the relief benefits based on projected amounts would be significantly higher than the costs shown in this report.





Section II

Analysis of the Valuation





As of December 31, 2005





Analysis of the Valuation

- Funding Progress
- Contribution Levels
- Economic Experience
- Demographic Changes in Membership
- Demographic Experience

Funding Progress

Funding Ratio:

There are various ways of measuring funding progress or funding status. We use a measure of funding status called the Funding Ratio. A Funding Ratio is the ratio of assets to liabilities on the valuation date.

Funding Ratios, when developed on a comparable basis, serve two important functions. They promote comparison between retirement systems and, in time sequence, are valuable as a trend indicator of funding progress or lack thereof.

At present the Volunteer Firefighters' Pension Plan is not fully funded. The funding ratio is 95 percent. The Funding Ratio itself has no part in the calculation of the required contribution. It is strictly an independent measuring device to promote analysis of funding progress and comparison to other retirement systems.

Calculation of Funding Ratios:

The Funding Ratio is calculated as the ratio of asset value to the present value of credited projected benefits as of the valuation date. The methods used to determine these items are as follows:

- **Asset Value** - For this purpose, asset values used are the Actuarial Value of Assets described in Appendix B and developed in Section IV.
- **Present Value of Credited Projected Benefits** - Benefits are projected to retirement, including future service, but prorated by only that service earned to date.



**Components of the Present Value
Of Credited Projected Benefits and
The Percentage of Each Covered by Assets**

(Dollars in Thousands)

	Credited Projected Liabilities***			Asset Value	Portion of Liability Covered by Assets			Funding Ratio
	Employee	Retiree	Employer		(1)	(2)	(3)	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
2005*	\$4,785	\$85,198	\$43,799	\$126,815	100%	100%	84%	95%
2004	4,763	73,106	28,793	120,040	100%	100%	146%	113%
2003	4,740	70,874	27,767	120,026	100%	100%	160%	116%
2002**	4,709	67,765	28,782	123,618	100%	100%	178%	122%
2001*	4,668	60,451	25,858	128,799	100%	100%	246%	142%
2000*	4,658	57,122	25,933	126,332	100%	100%	249%	144%
1999	4,616	55,998	28,260	117,622	100%	100%	202%	132%
1998**	4,158	52,940	28,084	102,434	100%	100%	161%	120%
1997	4,055	39,439	19,750	90,835	100%	100%	240%	144%
1996	3,092	37,398	20,365	78,165	100%	100%	185%	129%
1995*	3,063	35,493	19,980	69,065	100%	100%	153%	118%
1994	3,029	32,723	19,071	61,576	100%	100%	135%	112%
1993*	3,029	30,542	21,099	59,360	100%	100%	121%	114%
1992	2,068	28,431	19,848	54,285	100%	100%	120%	108%
1991**	1,882	26,477	19,367	49,114	100%	100%	107%	103%
1990	1,830	21,734	16,940	45,102	100%	100%	127%	111%
1989*	1,800	20,448	16,217	43,104	100%	100%	129%	112%
1988	1,700	20,374	17,856	38,504	100%	100%	92%	96%

*Actuarial assumptions changed.

**Includes the effect of benefit increases.

*** (1) Active employee accumulated contributions.

(2) Retired (and terminated vested) liability - employee and employer financed.

(3) Employer financed portion of active credited projected liability.

Funding Progress:

Section III of this report examines the development of the Funding Ratio for 2005. The Present Value of Credited Projected Benefits (the cost of that portion of a projected pension attributed to service to date) is \$133,782,000. If the level of the Funding Ratio were about 100 percent, we would have approximately that amount of money in our investment fund to cover these benefits. Assets did not exceed that level. As of December 31, 2005, the Actuarial Value of Assets was \$126,815,000. The ratio of the two, or the Funding Ratio, is 95 percent. The difference is a deficit of \$6,967,000.

Contribution Levels

The method used to determine the contribution as a level dollar amount (Entry Age Normal Level Dollar Cost Method -- see Appendix B) divides the contribution into two parts: Normal Cost and Unfunded Actuarial Accrued Liability Cost. The sum of these two should satisfy all of the liabilities of the system if: the contributions are made regularly; benefits are not increased; and assumptions prove reasonable. Because one source of plan revenue is variable (the premium tax on fire insurance policies), it is unlikely that we will see a smooth pattern of contributions.

The per-person pension contributions are:



	Previous Method 8% interest	New Method 8% interest	New Method 7% interest	
Per Person Contribution Rates				
Valuation	2004	2005	2005	2005
Pension Rate				
Employee	\$30.00	\$30.00	\$30.00	\$30.00
Employer	30.00	30.00	30.00	30.00
State	<u>61.09</u>	<u>61.22</u>	<u>6.75</u>	<u>29.82</u>
Normal Cost Rate	\$121.09	\$121.22	\$66.75	\$89.82
State UAAL or (Surplus) Rate	<u>(45.36)</u>	<u>(80.75)</u>	<u>(23.10)</u>	<u>130.70</u>
Pension Rate	\$75.73	\$40.47	\$43.65	\$220.52

Economic Experience

Economic assumptions are not as readily analyzed by statistical methods as are demographic assumptions. The experience will reflect the current economic, financial, and inflationary environment.

- **Investment Returns** - The actual dollar-weighted rate of return for the year was 9.0 percent based on the Actuarial Value of Assets. We had assumed a rate of 7.0 percent for this period. The return based on Market Value, as reported by the State Investment Board, was 13.55 percent. The investment return assumption is the rate of return we expect to earn over the long term. Significant variations of investment earnings from those assumed should be expected over a short period. The funding of pensions is a long-term proposition and deviations from assumptions over a short time do not necessarily affect long-term costs. Future investment return is assumed to be 7 percent per year.
- **Premium Tax** - 40 percent of the premium tax paid on fire insurance policies is contributed to the plan. The level has fluctuated because the amount of the contribution is net of amounts paid by insurers to guarantee associations.



Fiscal Year	Premium Tax (40%)		Net Premium Tax
	Gross Premium Tax	Assessment Credits	
2005	\$5,283,797	\$98,132	\$5,185,665
2004	4,827,084	100,952	4,726,132
2003	4,207,632	95,988	4,111,644
2002	3,605,541	620	3,604,921
2001	3,320,026	291	3,319,735
2000	2,869,387	393	2,868,994
1999	2,705,585	29	2,705,556
1998	2,286,092	756	2,285,336
1997	2,553,181	14,080	2,539,101
1996	2,991,158	18,166	2,972,992
1995	2,379,854	50,074	2,329,780
1994	2,460,676	91,147	2,369,529
1993	2,131,915	115,837	2,016,078
1992	1,852,699	116,711	1,735,988
1991	2,246,233	165,584	2,080,649
1990	2,040,938	149,266	1,891,672
1989	2,026,826	126,878	1,899,948

**Gross Premium Tax - Assessment Credits = Net Premium Tax*

Demographic Changes in Membership

One major factor in any analysis of valuation results is the extent to which the size and composition of the group of covered employees has changed. A comparison of significant characteristics of the covered group as of December 31, 2005, to that as of December 31, 2004, follows.

Actives:

The total number of active members covered for relief benefits decreased from 17,813 to 16,928 (4.97 percent).

- The total number of active members covered for a pension benefit decreased from 12,109 to 11,926 (1.51 percent).
- The average attained age for active members increased from 41.0 years to 41.2 years.
- Average service for active members increased from 10.0 years to 10.2 years.
- Average benefit service for active members decreased from 8.8 years to 8.7 years.

Retirees:

- The number of retirees increased from 3,110 to 3,208; an increase of 3.15 percent.
- The average annual benefit payable increased from \$2,135 to \$2,144.

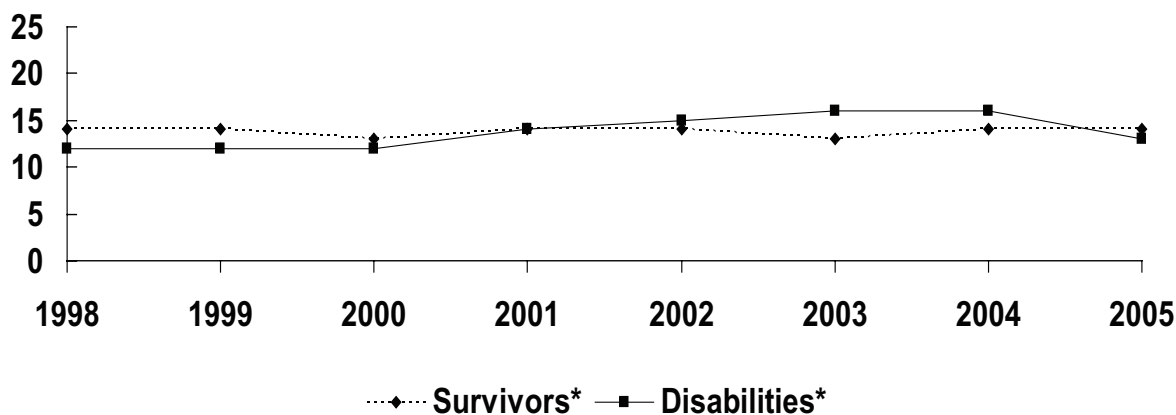
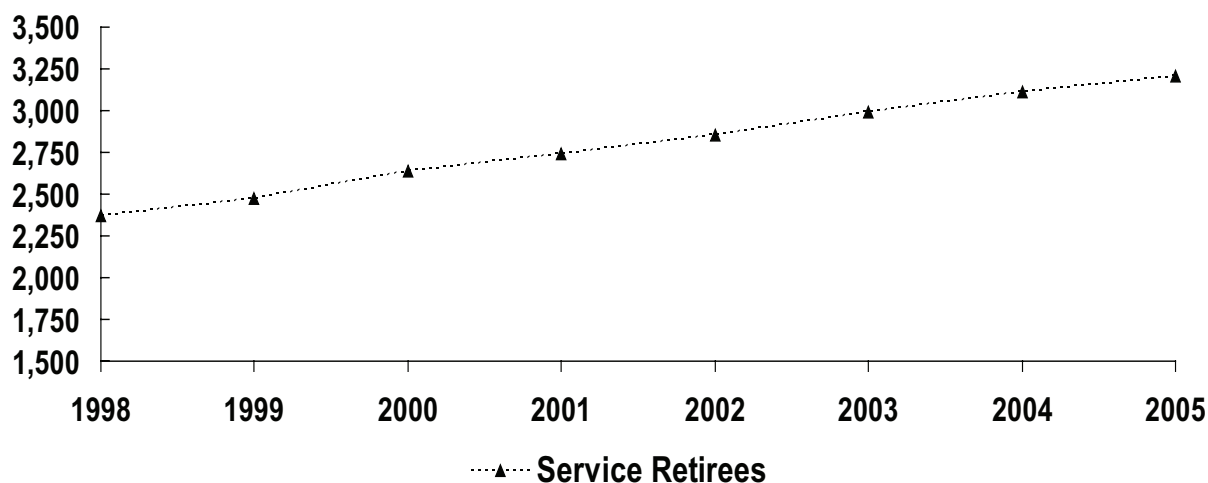


Demographic Experience

	Actual	Expected	Extra	Extra %
Retirements	63	85	-22	-26%
Percentage of Actives Retiring*	0.52%	0.70%	-0.18%	
Terminations	1,885	1,388	497	36%
Percentage of Actives Terminating*	15.57%	11.46%	4.11%	

*Percentages differ greatly from last year due to better data on relief only members.

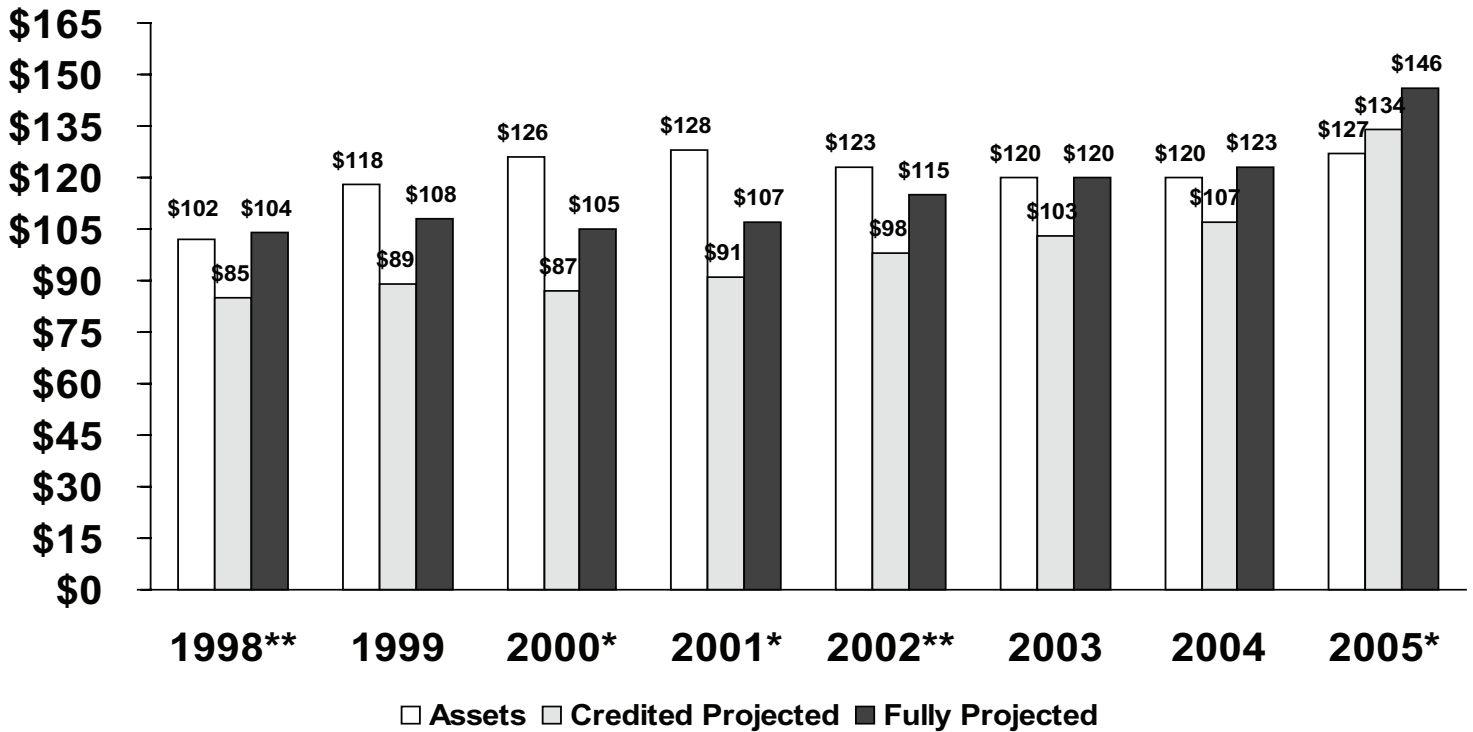
Number of People Recieving Benefits at Year End



* Relief plan.



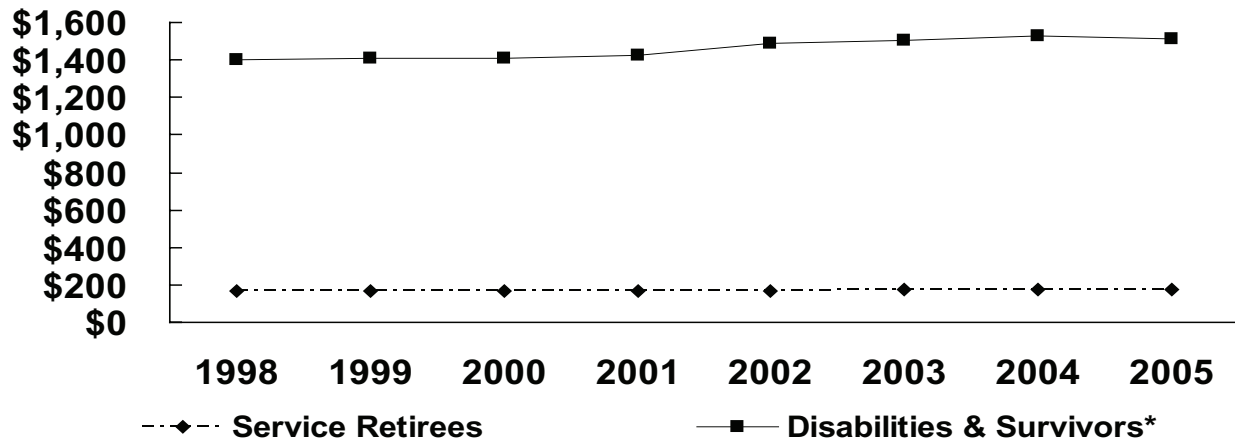
Value of Benefits Versus Assets at Year End



* Actuarial assumptions changed.

** Benefits increased.

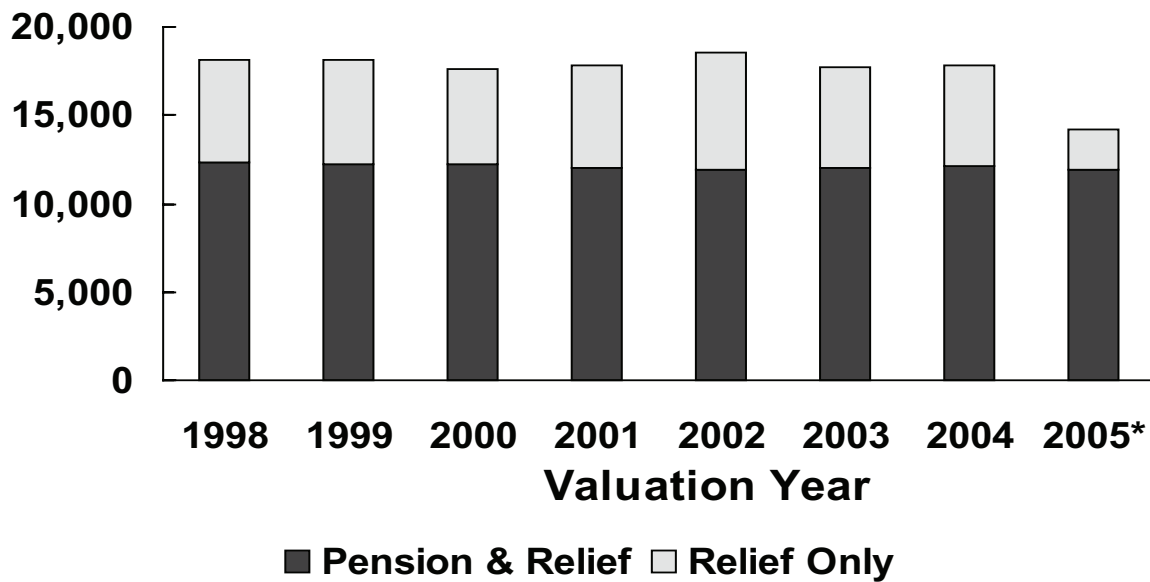
Average Monthly Benefit Payable at Year End



*Relief plan.



Number of Active Members at Year End



**Results based off of better data – actual number of active members at year end rather than total number of contributions collected.*





Section III

Actuarial Determinations





As of December 31, 2005



Section III

Actuarial Determinations



Table 1
 Volunteer Firefighters' Pension and Relief Plan
 Development of Required Annual Contributions
(Dollars in Thousands)
 December 31, 2005

Pension and Relief Plans		
	Per Person	Total
Required Annual Contributions		
Pension Benefits	<i>(Dollars)</i>	<i>(\$ in Thousands)</i>
Normal Cost	\$89.82	\$1,071
Cost of Unfunded Actuarial Accrued Liability	130.70	1,559
Total Pension Contribution Rate	\$220.52	\$2,630
Relief Benefits <i>(Disability, Medical, and Survivor Benefits)</i>		
Temporary or Partial Disability	\$36.95	\$625
Medical Costs	67.06	1135
Survivors	15.13	256
Total Relief Rate	\$119.14	\$2,017
Total Pension and Relief	\$339.66	\$4,647
Operating Expense		
Administration and Expenses*	\$22.72	\$385
Total for Pension, Relief, and Expenses		\$5,031

*Estimated using actual dollars.

Note: Totals may not agree due to rounding.

Pension costs are allocated to pension members; relief and operating costs are allocated to all members.

Emergency medical service districts and reserve law enforcement officers pay the full cost, including administration.

Employers pay 1.5 percent of salary for full paid firefighters not in LEOFF.

Table 2
 Volunteer Firefighters' Pension Plan
 Development of Unfunded Actuarial Accrued Liability (Surplus)
(Dollars in Thousands)
 December 31, 2005

Pension Plan	
	Total
a. Present Value of Fully Projected Benefits	\$146,236
b. Actuarial Value of Assets	<u>126,815</u>
c. Unfunded Present Value of Fully Projected Benefits (a-b)	19,421
d. Present Value of Future Normal Costs	
Employer	1,904
Employee	1,904
State	<u>2,366</u>
Total	6,173
e. Unfunded Actuarial Accrued Liability (Surplus) (c-d)	13,247
f. Contribution to Amortize the Unfunded Actuarial Accrued Liability (Surplus) by 12/31/2017	<u>\$1,559</u>

Note: Totals may not agree due to rounding.



Table 3
Volunteer Firefighters' Pension and Relief Plan
Comparison of Annual Plan Costs and Income
(Dollars in Thousands)
December 31, 2005

Pension and Relief Plans	
Pension and Relief Plans	Total
Actuarial Costs:	
Normal Cost	\$1,071
UAAL (Surplus) to 12/31/2017	1,559
Pension	2,630
Relief ¹	<u>2,017</u>
Total Actuarial Costs	\$4,647
Income:	
Fire Insurance Premium Tax ¹	4,808
Administration and Expenses ¹	<u>(385)</u>
	\$4,423
Pension:	
Employer	358
Employee	358
Other Pension ²	<u>10</u>
	\$725
Relief:	
Employer ⁴	508
Other Relief ^{2,3}	<u>36</u>
	543
Total Income	<u>5,692</u>
Surplus (deficit) Income	<u>\$1,045</u>

Note: Totals may not agree due to rounding.

¹ *Estimated using actual dollars.*

² *Emergency Medical Services Districts and Reserve Law Enforcement Officers pay full cost.*

³ *Employer pays 1.5 percent of salary for full paid firefighters not in LEOFF.*

⁴ *Relief fees are based on the rate of \$30.00 per member.*



Table 4
Volunteer Firefighters' Pension Plan
Development of Funding Ratio
(Dollars in Millions)
December 31, 2005

Pension Plan		
	Actuarial Value of Assets	Market Value of Assets
Present Value of Credited Projected Benefits	\$133.80	\$133.80
Assets	\$126.81	\$136.40
Unfunded(Surplus)	\$7.00	(\$2.60)
Funding Ratio:		
December 31, 2005*	95%	102%
December 31, 2004	113%	118%
December 31, 2003	116%	113%
December 31, 2002**	122%	102%
December 31, 2001*	142%	124%
December 31, 2000*	144%	139%
December 31, 1999	132%	140%
December 31, 1998**	120%	126%
December 31, 1997	144%	152%
December 31, 1996	129%	136%
December 31, 1995*	118%	125%
December 31, 1994	112%	109%
December 31, 1993*	114%	116%
December 31, 1992	108%	111%
December 31, 1991**	103%	110%
December 31, 1990	111%	114%
December 31, 1989*	112%	114%
December 31, 1988	98%	96%

* Actuarial assumptions changed.

** Benefits were increased.



Table 5
Volunteer Firefighters' Pension Plan
Present Value of Pension Benefits
(Dollars in Millions)
December 31, 2005

Pension Plan		
Present Value of Benefits	Credited Projected	Fully Projected
Active Members		
Retirement	\$24.3	\$31.1
Vesting	\$24.2	\$29.7
Withdrawal	<u>\$0.1</u>	<u>\$0.2</u>
Total Actives	\$48.6	\$61.0
Inactive Members	\$54.4	\$54.4
Retirees and Beneficiaries	\$29.3	\$29.3
Terminated Members	<u>\$1.5</u>	<u>\$1.5</u>
Total Inactives	\$85.2	\$85.2
2005 Total	\$133.8	\$146.2
2004 Total	\$106.7	\$122.9

Note: Totals may not agree due to rounding.

** Includes pension benefits only, not medical, disability, or survivor benefits.*



Section IV

System Assets





As of December 31, 2005





Table 6
 Volunteer Firefighters' Relief and Pension Plan
 Market Value and Actuarial Value of Assets
(Dollars in Thousands)
 December 31, 2005

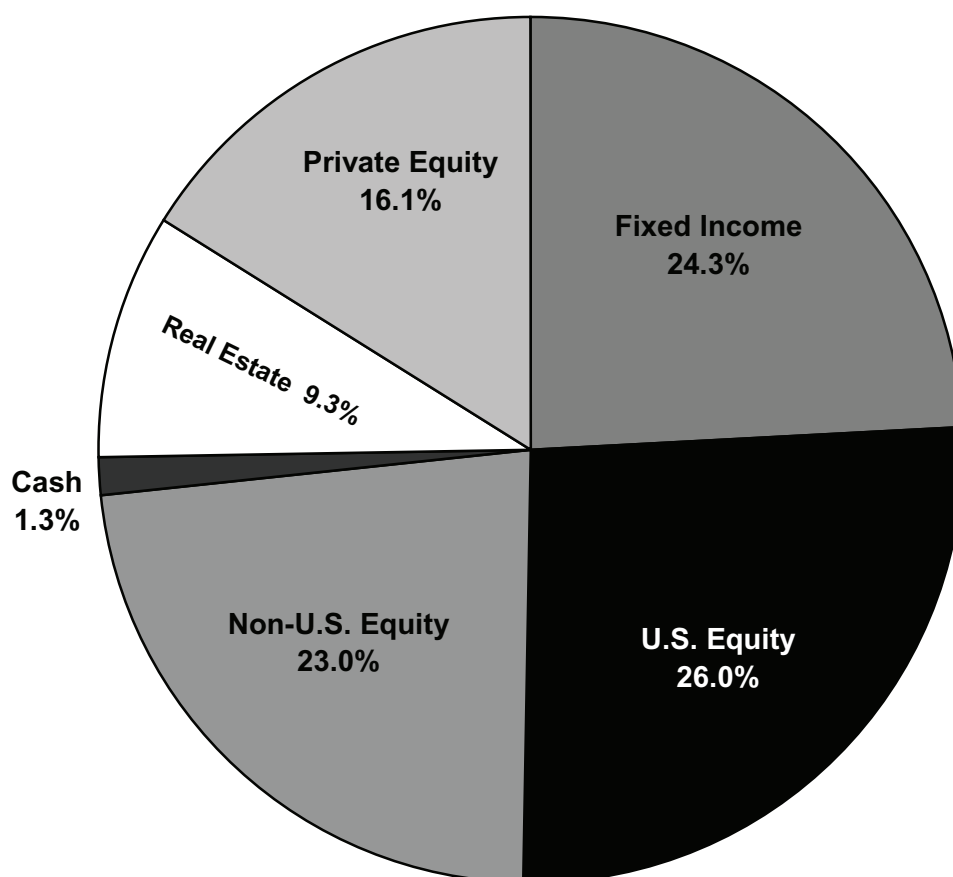
Assets as of December 31, 2005	
State Investment Board	\$116,282
State Treasury	<u>20,092</u>
Invested Assets	136,374
Accounts Payable	<u>3</u>
(a) Market Value of Assets	\$136,371
2005 Deferred Investment Gains (Losses)	4,388
2004 Deferred Investment Gains (Losses)	2,706
2003 Deferred Investment Gains (Losses)	<u>2,463</u>
(b) Deferred Investment Gains (Losses)	<u>9,557</u>
(c) Actuarial Value of Assets (a-b)	\$126,814
(d) Ratio of Actuarial to Market (c/a)	93%

Note: Totals may not agree due to rounding.

Assets as of December 31, 2004	
(a) Market Value of Assets	\$125,492
(b) Deferred Investment Gains (Losses)	<u>5,452</u>
(c) Actuarial Value of Assets (a-b)	\$120,040
(d) Ratio of Actuarial to Market (c/a)	96%



Allocation of Assets as of December 31, 2005*



**State Investment Board asset allocation for the quarter ending December 31, 2005, for the Commingled Trust Fund (CTF). Not all assets are invested in the CTF.*



Table 7
 Volunteer Firefighters' Pension and Relief Plan
 Summary of Financial Activity
(Dollars in Thousands)
 Calendar Year Ending December 31, 2005

Market Value December 31, 2004	\$125,492
Revenue:	
Contributions:	
Member	144
Employer	<u>539</u>
Total	\$683
Disability Fees	236
Investment Earnings Net of Expenses	14,695
Miscellaneous	
Net Fire Insurance Premium Tax	4,808
Allocation to the Administration Fund*	<u>(368)</u>
Total Revenue	\$20,054
Disbursements:	
Refunds	15
Expenses	<u>33</u>
Subtotal	\$48
Benefits:	
Disability and Survivor	882
Medical	<u>1,135</u>
Relief Benefits	2,017
Retirement Pensions (monthly and lump sums)	<u>7,116</u>
Total Benefits	9,133
Total Disbursements	\$9,181
Payables:	
Change in Accounts Payable	(\$7)
Market Value December 31, 2005	\$136,372

Note: Totals may not agree due to rounding.

** Actual administration costs were \$330 thousand.*





Section V

Membership Data





As of December 31, 2005



Section V

Membership Data



Table 8
Volunteer Firefighters' Relief and Pension Plan
Membership
December 31, 2005

	1997*	1998*	1999	2000	2001	2002	2003	2004**	2005
Actives									
Members in either System	N/A	18,095	18,169	17,612	17,794	18,545	17,752	17,813	14,185
Members in Relief System	18,074	17,909	18,053	17,607	17,794	18,545	17,752	17,813	14,185
Members in Pension System	12,330	12,381	12,210	12,254	11,996	11,903	12,043	12,109	11,926
Percent of Volunteers Covered	68%	68%	67%	70%	67%	64%	68%	68%	84%
Average Age	40.6	40.7	40.8	40.8	40.9	41.0	41.0	41.0	41.2
Average Pension Benefit Svc	8.6	8.7	8.8	8.8	8.8	8.8	8.7	8.8	8.7
Average Total Service	9.9	10.0	10.1	10.1	10.1	10.1	10.0	10.0	10.2
Active Emergency Med. Technicians						26	28	38	38
Active Reserve Law Enf. Officer						244	259	290	288
Retirees									
Number of Retirees/Beneficiaries	2,307	2,372	2,473	2,638	2,743	2,854	2,993	3,110	3,208
Annual Benefit Payments (,000)	\$3,658	\$4,811	\$4,999	\$5,277	\$5,448	\$5,639	\$6,383	\$6,639	\$6,877
Average Annual Benefit	\$1,586	\$2,029	\$2,021	\$2,000	\$1,986	\$1,976	\$2,132	\$2,135	\$2,144
Average Age	72.2	72.5	72.6	72.7	72.8	72.8	72.8	72.9	73.3
New Retirees	149	137	186	227	193	210	225	207	190
Term Vested									
Number of Term Vested	3,203	3,398	3,751	3,960	4,210	4,389	4,511	4,657	4,891
Survivor & Disabled									
Number of Survivors	14	14	14	13	14	14	13	14	14
Number of Disabled	12	12	12	12	14	15	16	16	13
Average Annual Benefit	\$16,843	\$16,793	\$16,884	\$16,947	\$17,086	\$17,828	\$18,026	\$18,333	\$17,380

*1997 and 1998 data have been revised using straight-line interpretation techniques for missing data.

**The number of Relief members in 2004 is estimated to be 15,844 counting members with multiple memberships once only.



Table 9
Volunteer Firefighters' Pension Plan
Active Members
Distribution by Age and Membership Service
December 31, 2005

Membership Service: (Nearest Year)	Age Group (Nearest Birthday)									Total
	Less than 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 & Over	
1	494	248	205	164	103	71	47	30	24	1,386
2	378	191	179	151	97	73	47	39	25	1,180
3-4	485	324	308	264	197	143	106	61	53	1,941
5-9	205	424	419	362	361	327	246	127	131	2,602
10-14	-	76	229	284	266	283	230	142	101	1,611
15-19	-	-	30	130	226	271	261	184	125	1,227
20-24	-	-	-	18	160	236	247	179	160	1,000
25 +	-	-	-	-	27	142	258	294	258	979
Total	1,562	1,263	1,370	1,373	1,437	1,546	1,442	1,056	877	11,926

Table 10
Volunteer Firefighters' Pension Plan
Active Members
Distribution by Age and Benefit Service
December 31, 2005

Benefit Service: (Nearest Year)	Age Group (Nearest Birthday)									Total
	Less than 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 & Over	
1	596	254	227	190	127	91	67	53	51	1,656
2	372	232	192	174	116	88	66	42	37	1,319
3-4	436	335	336	280	212	169	135	68	64	2,035
5-9	158	384	415	354	376	343	253	145	154	2,582
10-14	-	58	182	255	262	286	243	157	120	1,563
15-19	-	-	18	109	203	271	277	210	124	1,212
20-24	-	-	-	11	130	216	227	189	164	937
25 +	-	-	-	-	11	82	174	192	163	622
Total	1,562	1,263	1,370	1,373	1,437	1,546	1,442	1,056	877	11,926



Table 11
Volunteer Firefighters' Pension Plan
Service Retirees*
December 31, 2005

Age	Number of Retirees	Average Annual Benefit
60	38	\$1,434.77
61	27	1,729.86
62	71	2,039.98
63	96	1,990.65
64	100	1,882.39
65	135	2,124.54
66	175	2,206.05
67	195	1,923.76
68	188	2,133.88
69	177	2,102.55
70	162	2,045.05
71	167	2,145.07
72	143	2,288.70
73	142	2,192.98
74	133	2,096.38
75	140	2,171.26
76	133	2,290.72
77	130	2,263.10
78	129	2,253.22
79	129	2,322.65
80	111	2,192.70
81	93	2,171.61
82	71	2,193.20
83	67	2,306.75
84	72	2,300.82
85	47	2,139.33
86	41	2,217.57
87	19	2,357.66
88	17	2,108.19
89	17	2,496.64
90 +	43	2,183.56
Total	3208	\$2,143.58

**Includes beneficiaries of service retirees.*



Table 12
Volunteer Firefighters' Relief Plan
Disabilities and Survivors
December 31, 2005

Disabilities			Survivors		
Age	Number of Lives	Average Annual Benefit	Age	Number of Lives	Average Annual Benefit
33	1	\$16,912.08	48	2	\$17,641.62
50	1	20,294.52	51	1	17,259.84
52	2	18,603.30	64	1	16,912.08
53	2	18,381.96	66	1	16,912.08
57	1	20,294.52	67	1	16,912.08
66	1	22,576.92	68	1	16,912.08
68	1	16,912.08	69	2	16,912.08
69	1	16,912.08	81	1	16,912.08
71	2	21,459.54	82	1	16,912.08
80	1	20,294.52	86	1	16,912.08
Total	13	\$19,314.33	88	2	16,912.08
			Total	14	\$17,041.14



Appendix A

Actuarial Assumptions





As of December 31, 2005





Actuarial Assumptions

Investment Returns:

We have assumed an annual investment return of 7.0 percent.

Mortality:

Mortality rates are from the RP 2000 Combined Healthy Mortality Table. See Table 15.

Retirement Rates:

Retirement rates begin at age 60 for active members. The rates are not a smooth function of age, but instead have bumps at ages 60, 62, and 65. See Table 14.

Terminated vested members are assumed to retire at age 65.

Termination:

The termination rates are a function of membership service. Termination rates in the first ten years start at 17 percent and grade down to 9 percent. With ten or more years of service the member is entitled to a deferred retirement pension. There are noticeable bumps at 20 years (when the service retirement factor significantly improves from 35 percent to 75 percent) and at 25 years (when maximum benefit levels can first be reached). See Table 13.



Table 13
Volunteer Firefighters' Pension Plan
Termination Rates
December 31, 2005

Probability of Termination	
Years of Membership Service	Rate
1	17%
2	17%
3	16%
4	15%
5	14%
6	12%
7	11%
8	9%
9	9%
10	9%
11	8%
12	8%
13	6%
14	6%
15	6%
16	5%
17	5%
18	4%
19	4%
20	9%
21	4%
22	4%
23	4%
24	4%
25	19%
26	13%
27	8%

**The early retirement factor
improves at 10, 15, 20, and 25
years of membership service.*

Table 14
Volunteer Firefighters' Pension Plan
Retirement Rates
December 31, 2005

Probability of Retirement	
Age	Rate
60	6%
61	3%
62	17%
63	9%
64	3%
65	46%
66+	26%



Table 15
 Volunteer Firefighters' Pension Plan
 Mortality Rates
 December 31, 2005

Age	RP-2000 Combined Healthy	
	Male	Female
	Mortality	Mortality
	(in %)	(in %)
20	0.0345	0.0191
25	0.0376	0.0207
30	0.0444	0.0264
35	0.0773	0.0475
40	0.1079	0.0706
45	0.1508	0.1124
50	0.2138	0.1676
55	0.3624	0.2717
60	0.6747	0.5055
65	1.2737	0.9706
70	2.2206	1.6742
75	3.7834	2.8106
80	6.4368	4.5879
85	11.0757	7.7446
90	18.3408	13.1682
95	26.7491	19.4509





Appendix B

Actuarial Methods





As of December 31, 2005





Actuarial Methods

Asset Valuation Method:

The actuarial value of assets is calculated under an adjusted market value method by starting with the market value of assets. For subsequent years the actuarial value of assets is determined by adjusting the market value of assets to reflect the difference between the actual investment return and the expected investment return during each of the last four years at the rate of 25 percent per year (annual recognition).

Actuarial Cost Method:

Every actuarial cost method is defined by the manner of development of two items:

- Normal Cost
- Unfunded Actuarial Accrued Liability

The contribution rate is developed as the sum of the Normal Cost and an amount to amortize the Unfunded Actuarial Accrued Liability.

The actuarial cost method utilized in the valuation to develop the pension contribution rates for Volunteer Firefighters' is the Entry Age Cost Method. Under this method, the Normal Cost of each type of benefit in the pension system is determined as that contribution rate that, if paid from entry date to retirement date on behalf of the average member of the system, would fully support that benefit for such member.

The Unfunded Actuarial Accrued Liability is the excess of:

- The Present Value of Fully Projected Benefits over
- The sum of:
 - (a) the Present Value of Future Normal Costs under the System; and
 - (b) the Actuarial Value of Assets.

Such an excess can arise for numerous reasons. While insufficient contributions and unrealistic actuarial assumptions can contribute, the major reason for its development is simply the natural growth of a retirement system. Examples of conditions that give rise to Unfunded Actuarial Accrued Liabilities are:

- Benefits granted for service prior to establishment of the plan;
- Retroactive benefit increases or plan liberalizations;
- Change of actuarial assumptions; and
- Actual experience under the System that vary significantly from the assumptions.

The contributions toward the Unfunded Actuarial Accrued Liability have been developed in this valuation as level dollar amounts which will amortize this item by December 31, 2017.

**Method Change:**

We changed the actuarial cost method utilized in the valuation to develop the pension contribution rates for Volunteer Firefighters' from a nonstandard version of the Entry Age Cost Method to the standard version of the Entry Age Cost Method.

Relief Plan:

Relief costs are included on a pay-as-you-go basis. Last year's actual costs are used to determine this year's contribution rates. No medical trend assumption was used.

Operating Expenses:

The actual administration and other miscellaneous expenses incurred last year were used to determine the contribution rate this year.



Appendix C

Provisions of the System





As of December 31, 2005





Provisions of the System

There are two employee benefits provided to volunteer fire fighters:

- Optional membership in the retirement plan;
- Mandatory death and disability coverage for duty-related injuries.

These benefits are part of two distinct plans, authorized by different sections of statute, and should not be confused as one.

The following section summarizes the benefits and contributions established under Chapter 41.24 RCW. This section is meant for purposes of reference and does not detail the rules and regulations upon which the actuarial calculations are made.

Participation:

RCW 41.24.010 (10):

“Participant” means: (a) For purposes of relief, any reserve officer who is or may become eligible for relief under this chapter or any fire fighter or emergency worker; and (b) for purposes of retirement pension, any fire fighter, emergency worker, or reserve officer who is or may become eligible to receive a benefit of any type under the retirement provisions of this chapter, or whose beneficiary may be eligible to receive any such benefit.

Contributions:

- Death and Disability - The member does not contribute. Municipalities contribute \$30.00 annually on behalf of each member. Also, municipalities contribute 1.5 percent of the annual salary of full paid firefighters not covered under LEOFF.
- Retirement - If a member chooses to enroll, they contribute \$30.00 annually and the municipality pays \$30.00. Municipalities may pay the entire contribution for the member. Also, 40 percent of the net premium taxes on fire insurance policies are paid into the plan.

Refund of Contributions:

Upon termination, members are entitled to a refund of their contributions without interest. If the member chooses this option, he/she then forfeits any earned pension benefits.

Buying Back Past Service:

If the pension payment is missed in any year following enrollment in the plan, it may be paid at a later date. Interest is levied at a rate of 1 percent per month.

**Medical Benefits (Relief Plan):**

Physician and hospitalization costs are covered to the extent set out in the RCW's.

Disability Payments (Relief Plan):

RCW 41.24.150

- Duty Disability - Members receive payments of \$2,550 per month for up to six months, thereafter payments are reduced. Disabled members receive \$1,275 per month, their spouse \$255, and dependant children \$110.
- Effective July 1, 2001, benefits are increased annually in line with the CPI Urban Wage Earners and Clerical Workers, all items, all cities index.
- Non-Duty Disability - None.

Death Benefits (Relief Plan):

RCW 41.24.160

- Survivors - Surviving spouses of active duty deaths shall be paid \$1,275 monthly. An additional \$110 is paid monthly to member's children while they are under 18 years old. The survivor benefits are subject to a maximum of \$2,550 monthly.
- Effective July 1, 2001, the maximum of \$2,550 is increased annually in line with the CPI Urban Wage Earners and Clerical Workers, all items, all cities index.

RCW 41.24.160

- Duty Death - A lump sum of \$152,000 is made.

RCW 41.24.230

- Funeral and Burial Expenses - A lump sum of \$2,000 is paid for active duty deaths. Members receiving disability benefits at the time of death shall be paid \$500.

Death Benefits:

RCW 41.24.180

- Non-duty Death - If the member had ten or more years of service, the spouse may elect an annuity instead of a refund of contributions. The annuity is the member's accrued benefit actuarially adjusted to reflect 100 percent Joint and Survivor pop-up pension and further actuarially reduced to reflect the difference in the number of years between the fire fighter's age at death and age 65.



Retirement Pensions:

RCW 41.24.170

At age 65 and ten years of service, the pension is unreduced for age. Early retirement eligibility begins at age 60 with ten years of Service, with a reduction for age. In either case the pension is reduced for service less than 25 years.

The monthly pension benefit formula is:

$(\$50 + \$10 \times \text{Benefit Service}) \times (\text{Membership Service Factor}) \times (\text{Age Factor})$

“Benefit Service” is the number of years the member has made pension contributions.

“Membership Service” is the number of years the member has been a member of the Relief Plan.

The maximum monthly pension benefit is \$300.

Membership Service Factor for Less than 25 Years of Service:

Membership Service	10 to 14	15 to 19	20 to 24	25 or more
Retirement Factor	20%	35%	75%	100%

Age Factor for Retirement Before Age 65:

Age	60	61	62	63	64	65
Retirement Factor	60%	68%	76%	84%	92%	100%

Retirement Options:

RCW 41.24.172

The normal form of benefit is a Single Life pension.

Retirees have the option of selecting a 100 percent Joint and Survivor Pop-up pension instead. If the member dies first, the pension continues to the spouse, unreduced. If the spouse dies first, the pension pops up to the amount the member would have received under the normal form.

Plan Changes:

None.





Appendix D

Glossary





As of December 31, 2005





Glossary

Actuarial Accrued Liability:

Computed differently under different funding methods, the actuarial accrued liability generally represents the portion of the present value of fully projected benefits attributable to service credit that has been earned (or accrued) as of the valuation date.

Actuarial Gain or Loss:

Experience of the plan, from one year to the next, which differs from that assumed will result in an actuarial gain or loss. For example, an actuarial gain would occur if assets earned 10 percent for a given year since the assumed interest rate in the valuation is 8 percent.

Actuarial Value of Assets:

The value of pension plan investments and other property used by the actuary for the purpose of an actuarial valuation (sometimes referred to as valuation assets). It is common for actuaries to select an actuarial valuation method that smoothes the effects of short-term volatility in the market value of assets.

Normal Cost:

Computed differently under different funding methods, the normal cost generally represents the portion of the cost of projected benefits allocated to the current plan year. The employer normal cost is the total normal cost of the plan reduced by employee contributions.

Present Value of Credited Projected Benefits:

The actuarial accrued liability computed under the Projected Unit Credit (PUC) funding method.

Present Value of Fully Projected Benefits:

Computed by projecting the total future benefit cash flow from the plan, using actuarial assumptions (i.e., probability of death, retirement, salary increases, etc.), and then discounting the cash flow to the valuation date using the valuation interest rate.

Projected Unit Credit (PUC) Funding Method:

The PUC funding method is a standard actuarial funding method. The annual cost of benefits under PUC is comprised of two components:

- Normal cost; plus
- Amortization of the unfunded actuarial accrued liability.

The PUC normal cost is the estimated present value of projected benefits to be earned in the current plan year.

Unfunded Actuarial Accrued Liability:

The excess, if any, of the actuarial accrued liability over the actuarial value of assets. In other words, the present value of benefits earned to date that are not covered by plan assets.





Appendix E

Emergency Medical Service Districts and Reserve Law Enforcement Officers





As of December 31, 2005





Emergency Medical Service Districts and Reserve Law Enforcement Officers

Emergency Medical Service Districts:

Chapter 331, Laws of 1993 extended the membership provisions of the pension and relief plans to include Emergency Medical Service District (EMSD) Volunteers.

Applicable RCW states that the funding of the EMSD volunteers should be consistent with the most recent actuarial valuation.

The funding of the system includes contributions from the members and their districts at a rate established in statute. The total of these is less than the normal cost. The balance of the normal cost comes from another revenue source, 40 percent of the state's premium tax on fire insurance policies. Since the premium tax is independent of the number of members, the addition of new members lowers the system's funding. To prevent this, the entire normal cost and administration expenses shall be paid by the EMSDs and their volunteers. Volunteers pay the fixed dollar rate established in statute. The EMSDs pay the fixed dollar rate plus any excess cost.

Reserve Law Enforcement Officers:

Chapter 11, Laws of 1995 extended the membership provisions of the pension plan to include Reserve Law Enforcement Officers. The pension provisions mirrored those of the EMSD's.

Chapter 148, Laws of 1999 extended the membership provisions of the relief plan to include Reserve Law Enforcement Officers. The relief provisions mirrored those of the EMSD's.





Appendix F

Relief Benefits on a Projected Basis





As of December 31, 2005





Relief Benefits on a Projected Basis

Comparison of Annual Costs Versus Present Value of Fully Projected Benefits (PVFPB)			
	Total	Annual	Per Person
	<i>(\$ in Millions)</i>		<i>(Dollars)</i>
Temporary or Partial Disability Benefits			
PVFPB	\$4.563	\$0.639	\$37.77
Pay-as-You-Go		\$0.625	\$36.92
Medical Benefits			
PVFPB	\$9.833	\$1.821	\$107.55
Pay-as-You-Go		\$1.135	\$67.05
Survivor Benefits			
PVFPB	\$2.873	\$0.442	\$26.12
Pay-as-You-Go		\$0.256	\$15.12
Total Relief Benefits			
PVFPB	\$17.269	\$2.902	\$171.44
Pay-as-You-Go		\$2.017	\$119.15

Assumptions and Methods

1. Projected Relief Benefits were valued using an interest rate of 7%.
2. Disability and Survivor COLAs increase in line with the assumed inflation rate of 3.5%.
3. Medical inflation is assumed to be 10.0% in 2006 reducing by 0.5% each year, until it levels off at 3.5% in 2019.
4. The funding method is a level dollar amount over the future working lifetime.
5. Funding of current disability and survivor benefits are to 2017, the UAAL amortization period.
There are currently 16 disabled members and 14 survivor participants.
6. The per-person costs were determined by dividing by 16,928, the number of fees collected.

Note: Benefits available for future disability and death claims, from current active members, have not been included in the above costs.

